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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/761,303	01/17/2001	Stephen L. Biracree	1043.001	3844

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EXAMINER

BURD, KEVIN MICHAEL

ART UNIT PAPER NUMBER

2631

DATE MAILED: 06/25/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/761,303

Applicant(s)

BIRACREE ET AL.

Examiner

Kevin M Burd

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/17/2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4.6.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

***Information Disclosure Statement***

1. The information disclosure statements (IDS) submitted on 1/17/2001 and 12/18/2001 are being considered by the examiner.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-40 are rejected under 35 U.S.C. 102(e) as being anticipated by Endres et al (US 6,418,164)

The applied reference has a common assignee as well as common inventors with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claims 1, 19, 25-27 and 39, Endres discloses a method and apparatus for timing recovery of symbols in a received signal. The receiver is shown in figure 3. The signal is sampled in an A/D converter (column 5, lines 12-15). An error is calculated in the error term calculator 72 and the error term is fed to the forward equalizer 60. The error for the current sample is based on the gradient of a blind cost criterion of Bussgang-class cost functions (column 2, lines 30-55 and column 6, lines 38-59). The Constant Modulus cost function is a Bussgang-class cost function. The error is calculated in the error term calculator 72 and the error term is fed to the forward equalizer 60. The feedback signal will correct the error in the equalizer. These steps will be repeated for each new sample that is received.

Regarding claims 2, 3, 20, 21 and 40, the calculation of the blind cost term is based on a sample and the error term is the derivative of the cost function as shown in column 6, lines 38-59).

Regarding claims 4 and 29, signal quality is known and restored through the adjustments to the equalizers (column 2, lines 1-4). Figure 4 discloses the generating of more than one error terms R1 and R2.

Regarding claims 5, 6, 30 and 31, the mux of figure 4 selects and outputs the error term.

Regarding claim 7, it is known to adjust equalizer parameters blindly using least mean squares (LMS) algorithm (column 2, lines 15-30).

Regarding claims 8 and 32, the quality measure is based on the signals received (column 2, lines 1-4).

Regarding claims 9-12, 17, 22-24 and 37, the Constant Modulus cost function is described in column 6, lines 38-59.

Regarding claims 13 and 28, the received signal is demodulated from a QAM signal (column 4, lines 53-63).

Regarding claims 14 and 34, the cost function is a Godard cost function (column 6, lines 50-52).

Regarding claims 15 and 35, the method is embodied in a processor of an IC (column 6, lines 59-67).

Regarding claims 16, 18, 36 and 38, the IC is in a television application (column 7, line 63 to column 8, line 7).

Regarding claim 33, the blind cost generator is included in an adaptive equalizer to adjust the equalizer coefficients as shown in figure 3.

### ***Conclusion***

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nikias et al (US 5,282,225) discloses an adaptive blind channel equalizer shown in figure 5A. The equalizer utilizes Bussgang cost functions to remove phase error in the received signal (column 6, lines 15-24). Choi (US 5,675,394) discloses an equalizer with coefficient updating operation using a CMA term to make the equalizer converge (abstract). This is used to equalize a television signal employing blind equalization (column 2, lines 53-55).

***Contact Information***

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

(703) 872-9314, (for formal communications intended for entry or for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Burd, whose telephone number is (703) 308-7034. The Examiner can normally be reached on Monday-Thursday from 9:00 AM - 6:00 PM.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3800.



Kevin M. Burd  
PATENT EXAMINER  
6/24/2004